

## WHAT IS CLAIMED IS:

1. A speed control circuit for a brushless dc motor, comprising:
  - a fan motor drive circuit connected with a power source;
  - an over-current-detecting/current-limiting circuit connected to the motor
  - 5 drive circuit and adapted to detect a rotational speed and an over-current, when the rotational speed is abnormal and the over-current is occurred, the over-current-detecting/current-limiting circuit controls a current at a low voltage level for passing through the fan motor drive circuit; and
  - a multi-functional speed control circuit connected to the over-current-
  - 10 detecting/current-limiting circuit and adapted to send a predetermined speed signal to control it;
  - wherein the multi-functional speed control circuit is able to generate PWM signals for precisely controlling the rotational speed.
2. The speed control circuit for the brushless dc motor as defined in
- 15 Claim 1, wherein the over-current-detecting/current-limiting circuit includes an over-current-detecting circuit, a rotational detective circuit and a current-limiting circuit.
3. The speed control circuit for the brushless dc motor as defined in
- Claim 1, wherein the multi-functional speed control circuit includes a PWM
- 20 control circuit and a thermal sensor element.

4. The speed control circuit for the brushless dc motor as defined in Claim 3, wherein the PWM control circuit is consisted of a PWM generator and a multi-functional control circuit.

5. The speed control circuit for the brushless dc motor as defined in  
5 Claim 4, wherein the multi-functional speed control circuit is connected to the thermal sensor element and further connected to a rotational detective circuit of the over-current-detecting/current-limiting circuit.

6. The speed control circuit for the brushless dc motor as defined in Claim 3, wherein the thermal sensor element is a thermistor.

10 7. The speed control circuit for the brushless dc motor as defined in Claim 1, wherein the multi-functional speed control circuit is connected between an over-current-detecting circuit and a rotational detective circuit of the over-current-detecting/current-limiting circuit.

8. The speed control circuit for the brushless dc motor as defined in  
15 Claim 1, wherein the fan motor drive circuit includes a Hall voltage amplifier circuit, a phase inverter circuit, and a motor coil drive circuit.